Forensic Chemistry and Toxicology 3015NSC - Tri 1 2021 - Nathan Campus - Blended

1. General Course Information

1.1 Course Details

Course code	3015NSC
Course title	Forensic Chemistry and Toxicology
Academic organisation	ESC School of Environment and Science
Trimester	Trimester 1 2021
Mode	Blended
Level	Undergraduate
Location	Nathan, On Campus
Credit point value	10

Restrictions:

Restriction: Students must be enrolled in the following programs: 1264 B Forensic Science, 1433 B Forensic Sc/B Crim Crim Just

Course Description:

This course provides an overview of the major disciplines of forensic chemistry and forensic toxicology, with examples to demonstrate their specific contributions to forensic analysis.

Assumed Background:

This course, 3015NSC Forensic Chemistry and Toxicology, is available only to students enrolled in the programs 1264 Bachelor of Forensic Science or 1433 Bachelor of Forensic Science/ Bachelor of Criminology and Criminal Justice. It is a core course for the Forensic Chemistry Major and an elective course for the Forensic Molecular Biology Major. This course is important to you because it aims to provide an understanding of the types of chemical analysis undertaken within forensic laboratories for the identification and quantification of drugs and poisons and shows you how the results of such analyses are interpreted. A broad range of licit and illicit drugs are discussed, along with pharmacological and toxicological analysis giving a comprehensive view of forensic chemical analysis and possible career opportunities.

Pre-requisite courses: 1008NSC Principles of Forensic Investigation.

Prior assumed knowledge: 2022NSC Forensic Lab Accreditation.

1.2 Course Introduction

This course will provide you with an understanding of the NATA-accredited processes used in forensic chemistry and toxicology. It is important to you because it aims to provide a detailed understanding of the techniques and processes used in NATA-accredited forensic chemistry and forensic toxicology laboratories. The course also highlights the significant impact of the outcomes of such forensic analyses on the presentation of expert evidence in court.

Previous Student Feedback

This course receives positive feedback each year (see below for comments from 2019 and 2020). Please note that this course has been significantly changed for 2021 as the previous physical evidence classes have moved to the second year 2002ESC Forensic Chemistry course. In previous years, students enjoyed the variety of the content but occasionally found the breadth of material covered daunting. This course will concentrate on the drugs and toxicology aspects of the previous course in more detail and if you actively participate in the tutorial sessions, you will get the chance to practice exam questions and will consolidate your understanding of each topic as you progress - this will prepare you very well for the EOT exam!

For many years I have required students to keep a journal each week to aid revision. Those who engaged with this task found it extremely helpful when they came to revise the varied content covered by this course. This task has been maintained in the course this year as I believe it is a valuable tool to help you to assimilate and revise the diverse topics covered in this course.

SEC: What did you find particularly good about this course?
The moot court is really good preparation for the expert witness course, particularly having a chance to answer similar questions in a less formal situation. The guest lecturers were great, really good to get exposure to a range of different areas and working forensic chemists. The lecture, tutorial and workshop lesson structures have a very good mix of learning and discussion.
Wide range of content kept the course interesting.
The breakdown of each topic, the different lectures and the moot courts
The course gave a broad look at all types of opportunities forensic chemists can specialise in, and have actual people who work in the areas was beneficial. Easy to follow week by week with information in lectures and tutorials. Preparation for the courts assessment later on in the degree helps students in the future.
How well prepared Sarah made sure we were in order to take the exam
The course is extremely well organised and it was good having the lectures then the tutorial a week later because it gave time to do the questions and it also left enough time so that the tutorial was like us going over the material again. And then we would review again when doing our blogs so I thought it was a good way to be repetitively going over the course materials essentially when there is so much content for this course. It is definitely a good idea to have the moot courts in this course before the actual courts course next year because it is the perfect way to prep for it.

1.3 Course Staff

Primary Convenor **Dr Sarah Cresswell**

Phone	3735 7824
Email	s.cresswell@griffith.edu.au
Campus	Nathan Campus
Building	Science 1 (N25)
Room	2.22
Consultation	Since some external staff participate in the course, changes to scheduled events may be more common than in other courses. If a change of topic/staff member is necessary at short notice, an announcement will be made via Learning at Griffith and all students will be emailed of this change. Please ensure you have set up your L@G email alerts so they are sent to the email address you use most frequently. The preferred method of communication with me or other teaching staff is by the email facility on the learning@griffith course page. Appointments can be made to discuss matters face-to-face with me by appointment, which should be arranged by email. This is also best achieved through the email facility on the learning@griffith course page. My email address is: s.cresswell@griffith.edu.au. You will be expected to learn collaboratively with other students during the course, and you should feel free to use the communication tools built into the learning@griffith web site to schedule and conduct virtual meetings, and to communicate with your peers.

Lecturer **Dr William Gee**

Email	w.gee@griffith.edu.au
Campus	Nathan Campus
Building	Science 1 (N25)

1.4 Timetable

Timetables are available on *the Programs and Courses website*.

NB: Details contained in this Section of the course profile and Section 4.1 Learning Activities are to be read in conjunction with the official class timetable. The published class timetable which is the authoritative source for timetabling information for all campuses can be located by clicking on the above link.

1.5 Lecture Capture

It is standard practice at Griffith University that lectures timetabled in lecture capture-enabled venues are recorded and made available to students on the relevant course site, in accordance with the University's Lecture Capture Policy.

The lecture series delivered as part of this course will be recorded and accessible via the Learning@Griffith course site.

2. Aims, Outcomes & Graduate Attributes

2.1 Course Aims

Welcome to 3015NSC Forensic Chemistry and Toxicology.

My name is Sarah Cresswell and I am the convener of this course. This course is co-taught by Dr William Gee and by colleagues from Health Support Queensland Forensic and Scientific Services but you can always contact me by email if you have any questions, about the course, at s.cresswell@griffith.edu.au - Please allow 48 hours for a response. When emailing please be sure to include the course code and your full name and student number in the email. For questions about Will's lectures, please email him directly at w.gee@griffith.edu.au including the same information.

All course correspondence will be sent to your student email accounts, so please be sure to forward your account to another email if you do not plan on checking your university account regularly. Please be aware that use of a personal email account, such as a hotmail address or something similar, as a nominated Griffith University account is NOT permitted. These email accounts will NOT be accepted as a matter of University policy, so if you have such an account in use for student correspondence at present, please ensure it is changed back to a legitimate Griffith University address. It is your personal responsibility to check your account at least daily, as important and urgent updates will be sent to you by this means.

Most of the class learning material including Lecture and Tutorial notes will be placed in this course site but some material may restricted by the author (if external to Griffith University) and will not be available - you will be told which material this is in class. If notes are not provided you will get the chance to develop your skills in individual note-taking and organisation. The writing of contemporaneous notes during your forensic case work is a crucial component of your daily operation and this will be good practice.

Before the first class you should take the time to familiarise yourself with the course site and go through the course outline which provides information on weekly topics and tutorial themes.

As some of this course is taught by experts who are not members of the permanent University staff, we do not have control of other demands that may be made on their time and expertise, often at short notice. It is possible that the course schedule may change from time to time as an inevitable consequence. If this is the case, you will receive an email announcement via L@G.

2.2 Learning Outcomes

After successfully completing this course you should be able to:

1.CONTENT-BASED OUTCOMES

1.1 Explain the processes and techniques involved in forensic chemical analyses as practiced in NATA-accredited Australian forensic laboratories.

1.2 Explain how pertinent legislation impacts upon forensic analysis requirements.

1.3 Analyse how the outcomes of such analyses impact on the presentation of expert forensic evidence in court and how such evidence might be challenged.

2.COGNITIVE OUTCOMES

2.1 Assess the forensic chemical analysis techniques currently used in NATA-accredited Australian forensic biology laboratories and interpret their results.

2.2 Justify the ethical responsibilities of forensic experts who analyse collected evidentiary items, and provide fact as well as opinion evidence in court.

3.APPLICATION OUTCOMES

3.1 Construct the correct language to communicate complex scientific ideas to a lay audience.

3.2 Assess the role and importance of problem-solving skills in forensic chemical analysis.

3.3 Illustrate the skills and knowledge relevant and applicable to future study, or employment in forensic laboratory organisations, or in other professions associated with the criminal justice system.

2.3. Graduate Attributes

For further details on the Griffith Graduate please click here

Griffith University prepares influential graduates to be:

- Knowledgeable and skilled, with critical judgement
- Effective communicators and collaborators
- Innovative, creative and entrepreneurial
- Socially responsible and engaged in their communities
- Culturally capable when working with First Australians
- Effective in culturally diverse and international environments

This table demonstrates where each of the Griffith Graduate Attributes is taught, practised and assessed in this course.

For further details on the Griffith Graduate Attributes please refer to The Griffith Graduate policy.

University wide attributes

Graduate Attribute	Taught	Practised	Assessed
Knowledgeable and skilled, with critical judgement	•	•	•
Effective communicators and collaborators	•	•	•
Innovative, creative and entrepreneurial	•	•	•
Socially responsible and engaged in their communities	•	•	•
Effective in culturally diverse and international environments	•	•	•

3. Learning Resources

3.1 Required Resources

Details of your Required Learning Resources are available from the Reading List.

3.2 Recommended Resources

Details of your Recommended Learning Resources are available from the Reading List.

3.3 University Learning Resources

The University provides many facilities and support services to assist students in their studies. Links to information about University support resources that are available to students are included below for easy reference.

Readings - New online service enabling students to access Required and Recommended Learning resources. It connects to the library catalogue to assist with quickly locating material held in Griffith libraries and enables students to manage and prioritise their readings, add personal study notes and export citations.

Learning@Griffith - there is a dedicated website for this course via the Learning@Griffith at myGriffith.

Academic Integrity Tutorial - this tutorial helps students to understand what academic integrity is and why it matters. You will be able to identify types of academic misconduct, understand what skills you will need in order to maintain academic integrity, and learn about the processes of referencing styles.

Student Support - provides a range of services to support students throughout their studies including personal support such as Counselling and Health Services; Academic support; and Financial and Welfare support.

The Careers and Employment Team provides: Career Wellbeing, Career Planning and Decision Making, Finding Jobs, Skills Identification and Development, Graduate Employment Information, LinkedIn Profile Review, Interview

Preparation, Online Psychometric and Aptitude Test Preparation, International Student Support, Disability Disclosure Strategies and Higher Degree Research (HDR) Career Consultations.

Library and Learning Services: Library and Learning Services provides a wide range of quality client-focused services and programs to students, researchers and staff of the University. Library and Learning Services works in collaboration with the academic community to achieve academic and research outcomes.

Support for learning - the University provides access to common use computing facilities for educational purposes.

Code of Practice - Griffith Information Technology Resources.

3.5 Other Learning Resources & Information

Supporting materials will be as provided by the teaching staff primarily on Learning@Griffith.

4. Teaching & Learning Activities

4.1 Learning Activities

Date	Lecture Series	Tutorial Series	Other Activities
8 Mar - 14 Mar	**Lectures**: Each week, a two-hour lecture will be presented by Dr Sarah Cresswell or Dr William Gee. **Learning Outcomes:** 1.1, 1.2, 1.3, 2.2, 3.3	**Tutorials**: Each week a tutorial will cover issues raised in the previous lectures. Questions will be set each week and you are expected to come with answers prepared. These sessions will provide you with excellent examples of the types of questions found in the EoT exam. Your participation is essential! **Learning Outcomes:** 1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.2, 3.3	
15 Mar - 21 Mar	**Lectures**: Each week, a two-hour lecture will be presented by Dr Sarah Cresswell or Dr William Gee. **Learning Outcomes:** 1.1, 1.2, 1.3, 2.2, 3.3	**Tutorials**: Each week a tutorial will cover issues raised in the previous lectures. Questions will be set each week and you are expected to come with answers prepared. These sessions will provide you with excellent examples of the types of questions found in the EoT exam. Your participation is essential! **Learning Outcomes:** 1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.2, 3.3	
22 Mar - 28 Mar	**Lectures**: Each week, a two-hour lecture will be presented by Dr Sarah Cresswell or Dr William Gee. **Learning Outcomes:** 1.1, 1.2, 1.3, 2.2, 3.3	**Tutorials**: Each week a tutorial will cover issues raised in the previous lectures. Questions will be set each week and you are expected to come with answers prepared. These sessions will provide you with excellent examples of the types of questions found in the EoT exam. Your participation is essential! **Learning Outcomes:** 1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.2, 3.3	

Date	Lecture Series	Tutorial Series	Other Activities
29 Mar - 4 Apr	**Lectures**: Each week, a two-hour lecture will be presented by Dr Sarah Cresswell or Dr William Gee. **Learning Outcomes:** 1.1, 1.2, 1.3, 2.2, 3.3	**Tutorials**: Each week a tutorial will cover issues raised in the previous lectures. Questions will be set each week and you are expected to come with answers prepared. These sessions will provide you with excellent examples of the types of questions found in the EoT exam. Your participation is essential! **Learning Outcomes:** 1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.2, 3.3	
12 Apr - 18 Apr	**Lectures**: Each week, a two-hour lecture will be presented by Dr Sarah Cresswell, Dr William Gee or colleagues from Forensic and Scientific Services, Health Support Queensland. **Learning Outcomes:** 1.1, 1.2, 1.3, 2.2, 3.3	**Tutorials**: Each week a tutorial will cover issues raised in the previous week's lectures. Questions will be set each week and you are expected to come with answers prepared. These sessions will provide you with excellent examples of the types of questions found in the EoS exam. Your participation is essential! **Learning Outcomes:** 1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.2, 3.3	
19 Apr - 25 Apr	**Lectures**: Each week, a two-hour lecture will be presented by Dr Sarah Cresswell, Dr William Gee or colleagues from Forensic and Scientific Services, Health Support Queensland. **Learning Outcomes:** 1.1, 1.2, 1.3, 2.2, 3.3	**Tutorials**: Each week a tutorial will cover issues raised in the previous week's lectures. Questions will be set each week and you are expected to come with answers prepared. These sessions will provide you with excellent examples of the types of questions found in the EoS exam. Your participation is essential! **Learning Outcomes:** 1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.2, 3.3	**Court preparation** (Case Study): In additional workshops we will discuss the requirement for presentation of chemical forensic evidence in court. Each of you will prepare a court report and will peer review the report of another student. In addition each of you will participate in a short moot court activity within one of the tutorial sessions. **Learning Outcomes:** 1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.3
26 Apr - 2 May	**Lectures**: Each week, a two-hour lecture will be presented by Dr Sarah Cresswell, Dr William Gee or colleagues from Forensic and Scientific Services, Health Support Queensland. **Learning Outcomes:** 1.1, 1.2, 1.3, 2.2, 3.3	**Tutorials**: Each week a tutorial will cover issues raised in the previous week's lectures. Questions will be set each week and you are expected to come with answers prepared. These sessions will provide you with excellent examples of the types of questions found in the EoS exam. Your participation is essential! **Learning Outcomes:** 1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.2, 3.3	**Court preparation** (Case Study): In additional workshops we will discuss the requirement for presentation of chemical forensic evidence in court. Each of you will prepare a court report and will peer review the report of another student. In addition each of you will participate in a short moot court activity within one of the tutorial sessions. **Learning Outcomes:** 1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.3
3 May - 9 May	**Lectures**: Each week, a two-hour lecture will be presented by Dr Sarah Cresswell, Dr William Gee or colleagues from Forensic and Scientific Services, Health Support Queensland. **Learning Outcomes:** 1.1, 1.2, 1.3, 2.2, 3.3	**Tutorials**: Each week a tutorial will cover issues raised in the previous week's lectures. Questions will be set each week and you are expected to come with answers prepared. These sessions will provide you with excellent examples of the types of questions found in the EoS exam. Your participation is essential! **Learning Outcomes:** 1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.2, 3.3	**Court preparation** (Case Study): In additional workshops we will discuss the requirement for presentation of chemical forensic evidence in court. Each of you will prepare a court report and will peer review the report of another student. In addition each of you will participate in a short moot court activity within one of the tutorial sessions. **Learning Outcomes:** 1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.3

Date	Lecture Series	Tutorial Series	Other Activities
10 May - 16 May	**Lectures**: Each week, a two-hour lecture will be presented by Dr Sarah Cresswell, Dr William Gee or colleagues from Forensic and Scientific Services, Health Support Queensland. **Learning Outcomes:** 1.1, 1.2, 1.3, 2.2, 3.3	**Tutorials**: Each week a tutorial will cover issues raised in the previous week's lectures. Questions will be set each week and you are expected to come with answers prepared. These sessions will provide you with excellent examples of the types of questions found in the EoS exam. Your participation is essential! **Learning Outcomes:** 1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.2, 3.3	**Court preparation** (Case Study): In additional workshops we will discuss the requirement for presentation of chemical forensic evidence in court. Each of you will prepare a court report and will peer review the report of another student. In addition each of you will participate in a short moot court activity within one of the tutorial sessions. **Learning Outcomes:** 1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.3
17 May - 23 May	**Lectures**: Each week, a two-hour lecture will be presented by Dr Sarah Cresswell, Dr William Gee or colleagues from Forensic and Scientific Services, Health Support Queensland. **Learning Outcomes:** 1.1, 1.2, 1.3, 2.2, 3.3	**Tutorials**: Each week a tutorial will cover issues raised in the previous week's lectures. Questions will be set each week and you are expected to come with answers prepared. These sessions will provide you with excellent examples of the types of questions found in the EoS exam. Your participation is essential! **Learning Outcomes:** 1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.2, 3.3	**Court preparation** (Case Study): In additional workshops we will discuss the requirement for presentation of chemical forensic evidence in court. Each of you will prepare a court report and will peer review the report of another student. In addition each of you will participate in a short moot court activity within one of the tutorial sessions. **Learning Outcomes:** 1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.3
24 May - 30 May	**Lectures**: Each week, a two-hour lecture will be presented by Dr Sarah Cresswell, Dr William Gee or colleagues from Forensic and Scientific Services, Health Support Queensland. **Learning Outcomes:** 1.1, 1.2, 1.3, 2.2, 3.3	**Tutorials**: Each week a tutorial will cover issues raised in the previous week's lectures. Questions will be set each week and you are expected to come with answers prepared. These sessions will provide you with excellent examples of the types of questions found in the EoS exam. Your participation is essential! **Learning Outcomes:** 1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.2, 3.3	**Court preparation** (Case Study): In additional workshops we will discuss the requirement for presentation of chemical forensic evidence in court. Each of you will prepare a court report and will peer review the report of another student. In addition each of you will participate in a short moot court activity within one of the tutorial sessions. **Learning Outcomes:** 1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.3
31 May - 6 Jun	**Lectures**: Each week, a two-hour lecture will be presented by Dr Sarah Cresswell, Dr William Gee or colleagues from Forensic and Scientific Services, Health Support Queensland. **Learning Outcomes:** 1.1, 1.2, 1.3, 2.2, 3.3	**Tutorials**: Each week a tutorial will cover issues raised in the previous week's lectures. Questions will be set each week and you are expected to come with answers prepared. These sessions will provide you with excellent examples of the types of questions found in the EoS exam. Your participation is essential! **Learning Outcomes:** 1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.2, 3.3	**Court preparation** (Case Study): In additional workshops we will discuss the requirement for presentation of chemical forensic evidence in court. Each of you will prepare a court report and will peer review the report of another student. In addition each of you will participate in a short moot court activity within one of the tutorial sessions. **Learning Outcomes:** 1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.3

4.2 Other Teaching and Learning Activities Information

This course will be primarily presented as a series of lectures and problem-based discussions/workshops. The purpose of the lectures is to provide the learning framework and primary source of content material for you through presentation of relevant forensic chemistry and forensic toxicology concepts and techniques. The purpose of the workshops is to review your understanding of the material presented in lectures by focusing on a specific problem-based scenario presented to you in advance of the corresponding workshops. Some of the workshops will include group working activities and subsequent presentations to peers in order to encourage collaborative learning to deal with problem-solving scenarios. Interactive discussion of these problem-based scenarios aims to ensure that any learning difficulties you may encounter

are identified and addressed. Evaluating solutions to problems provided by other students and comparing them with your own will help you develop critical abilities in respect of your own work and that of other students.

Contact Summary
You are strongly advised to attend ALL lecture and tutorial sessions. From previous years' results it is clear that students who attended all sessions performed better in both the assignment and the end of trimester examination. These activities form a solid basis for professional practice, and elements of this course provide the necessary framework for learning in relation to subsequent forensic courses in your chosen major.

CONTENT SUMMARY
Material delivered in this course is as up to date as possible in these forensic disciplines. If significant new developments in any of the areas covered by this course occur during the trimester, these will be highlighted for you, and if possible, included in the course.

The following broad areas of forensic chemistry and toxicology will be covered during this course:

- Illicit drugs; legislation, analysis and quantification
- Clandestine laboratories
- Forensic toxicology
- Analytical instrumentation relevant to forensic chemistry and toxicological samples

The skills and knowledge you gain during this course will be useful to you for the remainder of your professional life. They will allow you to critique the analyses of others, perform analyses yourself if appropriate to your field, and will help you present expert evidence before a court.

This material will be useful to you particularly if you intend to pursue a career in forensic chemistry or forensic toxicology, although generic skills and knowledge learned during this course can be applied to other forensic specialties.

Case Study

A second series of workshops within this course have been developed specifically for the purpose of equipping you for the presentation of forensic chemistry evidence in court. Each of you will work on case material to prepare a statement of witness which will be peer reviewed by a colleague in the class. You will then be required to participate in a moot court experience within the allocated tutorial time.

If a lecture or tutorial class is scheduled on a public holiday (or is cancelled for any unexpected reason), this class will normally not be repeated.

Students Repeating a Course:

Marks from a previous attempt at this course are usually used to provide formative experience as well as a summarise assessment. Therefore NO marks for any assessment items from a previous attempt with be carried forward.